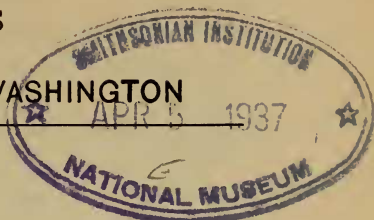


April 2, 1937

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTONA NEW MOUNTAIN SHEEP FROM LOWER
CALIFORNIA.

BY E. A. GOLDMAN.

Reports of the occurrence of mountain sheep in the Sierra de la Giganta (Mountains of the Giant), of southern Lower California first came to my attention while on an overland journey by pack train the length of the peninsula with E. W. Nelson in 1906. The possibility that some wild sheep might remain in that remote region was discussed with the hunter-naturalist F. Carrington Weems who became much interested in a field investigation to settle the uncertainty and that would perhaps result in a material contribution to our knowledge of the group. Years passed, but slowly evolved plans matured, and March 26, 1936, found us on our way across the Gulf of California. A third member of the party was my son, Luther C. Goldman, and our activities were to include general faunal investigations in the field. A yearlong closed period has properly been set up for the protection of mountain sheep under the game laws of Mexico. Through the courtesy, however, of Señor Juan Zinser, chief of the game section of the Department of Forestry, Game, and Fish, we were provided with a special permit to take a limited number of specimens for scientific purposes. A special dispensation of the Mexican War Department authorized us to enter Lower California with our rifles.

The Sierra de la Giganta is a narrow range, isolated by low gaps to the north and south, extending for a distance of 60 or 70 miles, close along the coast of the Gulf of California. The range is strongly uptilted toward the east. The western slope, therefore, is more gradual, but along the crest the east front breaks away precipitously in a great series of gorges, ridges, and minor

peaks and crags with contours labyrinthine in complexity. The highest peak, the Cerro de la Giganta, at the extreme north end, rises to 5,500 feet, but the altitude of the general crest varies from about 3,500 to 4,500 feet. Permanent water is scarce, but the annual rainfall, as attested by the vegetation, is somewhat more copious than in the central desert section of the peninsula. Light frosts sometimes occur in winter, but the prevailing temperatures are high.

The vegetation of the Sierra de la Giganta includes elements representing northern extensions of the peculiar subtropical flora centered in the Cape Region of the peninsula south of La Paz. One of the most conspicuous trees, owing to the whiteness of its bark, is the "palo blanco" (*Lysiloma candida*). The gathering of the bark for tanning purposes is one of the leading industries of the region. Another conspicuously white-barked tree is the wild fig, or "salate" (*Ficus palmeri*). It may be a well-shaped tree but more typically assumes fantastic forms, the trunk dividing and flattening out to embrace a rock, or spreading over the face of a cliff. A still more remarkable tree—a veritable plant monstrosity—is the "copalquin" (*Pachycormus discolor*). The short, thick trunk tapers rapidly from the ground upward to the slender tips of the peculiarly contorted branches. The giant beargrass (*Nolina beldingii*) grows on the higher peaks. It is known elsewhere only from the high mountains of the Cape Region. Tall fan palms (probably *Erythea brandegeei*) add a tropical or subtropical touch, especially in the vicinity of water. In this exotic setting, below latitude 26°, mountain sheep reach their farthest south in America. General habitat conditions appear to be very favorable, but we found the fresh tracks of a mountain lion on the fresh trail of sheep in local terrain too rugged to be favored by the mule deer. The most urgent need, however, is adequate protection from man if the small remnant of this hitherto undetected geographic race is to endure.

***Ovis canadensis weemsi*, subsp. nov.**

SOUTHERN LOWER CALIFORNIA MOUNTAIN SHEEP.

Type.—From Cajon de Tecomaja, Sierra de la Giganta, about 30 miles south of Cerro de la Giganta, southern Lower California (altitude 2,000 feet). No. 261696, ♀ adult, skin and skull, U. S. National Museum (Bio-

logical Survey collection), collected by F. Carrington Weems, April 13, 1936. X—catalogue number 27590.

Distribution.—Sierra de la Giganta, southern Lower California and northward, grading toward *Ovis canadensis cremnobates* of northern Lower California in the Sierra de San Borjas in the central part of the peninsula.

General characters.—Size large and color dark for a desert subspecies; horns remarkably long and gradually tapering; pelage very short. Most closely allied to *Ovis canadensis cremnobates* of northern Lower California; size similar, but pelage shorter; color usually darker, varying to very dark brown more or less distinctly mixed with black; cranial details distinctive. Similar in size to *Ovis canadensis gaillardi* of southwestern Arizona, but usually darker and skull characters, including the broader premaxillae, different. Color darker than in *Ovis canadensis nelsoni* of eastern California, *Ovis canadensis mexicana* of Chihuahua, or *Ovis canadensis texiana* of Texas, and a marked departure in cranial features from each is exhibited.

Color.—*Type* (fresh pelage appearing through faded winter coat): General color (ignoring faded hairs) above and below very dark brown—near Mars brown (Ridgway 1912)—with a blackish admixture especially on posterior part of back, legs and tail; rump patch white as usual in the group, nearly completely divided along a narrow median line by longer blackish brown hairs; fore and hind legs with white areas extending down inner surfaces to hoofs; muzzle whitish; ears brownish gray. In other specimens the toes are dusky all around.

Skull.—Closely approaching that of *cremnobates* in size and general contours, but horns of rams apparently less widely spreading, and of lesser diameter at base; premaxillae broader anteriorly, with more widely extended lateral shelves along median line between anterior palatine foramina; anterior palatine foramina usually longer; nasals broader; basioccipital usually broader; interpterygoid fossa usually wider; dentition similar. Compared with that of *gaillardi* the skull is similar in general size, but horns of rams apparently less widely spreading, and of lesser diameter at base; premaxillae broader anteriorly, with more widely extended lateral shelves along median line between anterior palatine foramina; nasals longer; interpterygoid fossa usually wider; dentition about the same. Similar in general size to that of *mexicana*, but diverging in detail; nasals longer, narrower, less flattened; premaxillae shorter, broader anteriorly, more developed laterally along median line between anterior palatine foramina. Contrasted with *texiana* the premaxillae are decidedly shorter and the nasals usually longer. The skull differs from that of *nelsoni* most obviously in larger size and heavier proportions.

External body measurements.—*Type*: Total length, 1887 mm.; tail vertebrae, 90; hind foot, 400. A young-adult female topotype: Total length, 1296; tail vertebrae, 77; hind foot, 375; height at shoulder, 775. girth of chest, 940. An adult male from 20 miles north of Calmalli: Total length, 1626; height at shoulder, 1029; girth of chest, 1006. Two adult females from 26 and 30 miles northeast of Calmalli, respectively: Total length, 423, 398; height at shoulder, 965, 940; girth of chest, 991, 965.

Cranial measurements.—*Type* and a young-adult female topotype,

respectively: Greatest length (median line), 294, 268.5; basioccipital length, 283.5, 260.8; width between posterior margins of orbits, 153, 145.2; width of braincase at concavities on outer sides of squamosals (just above origin of squamosal arm of zygoma), 76.3, 74.4; least interorbital width (near union between jugals and lachrymals), 111.9, 100; length of ascending branch of premaxilla, 102.4, 90.9; length of premaxillae as exposed along median line below, 57.3, 56.3; width of premaxillae anteriorly, 28.2, 25.7; width of expansion of median division of premaxillae near posterior ends between anterior palatine foramina, 11.4, 7.8; width of basioccipital (near middle between auditory bullae), 32.8, 29; length of nasals, 113.9, 103.7; width of nasals (near fronto-lachrymal suture), 43.7, 37.7; length of horn (anterior curve), 375, 325; circumference of horn at base, 175, 143; greatest spread of horns (between tips), 451, 338; maxillary toothrow (alveoli), 88.8, 82.2.

A young-adult male topotype (fronto-nasal sutures partly closed): Greatest length (median line), 298.5; basioccipital length, 285.2; width between posterior margins of orbits, 163.8; width of braincase at concavities on outer sides of squamosals (just above origin of squamosal arm of zygoma), 81.7; least interorbital width (near union between jugals and lachrymals), 118.6; length of ascending branch of premaxilla, 96.6; length of premaxillae as exposed along median line below, 59.1; width of premaxillae anteriorly, 31.8; width of expansion of median division of premaxillae near posterior ends between anterior palatine foramina, 9.8; width of basioccipital (near middle between auditory bullae), 35.2; length of nasals, 119; width of nasals (near fronto-lachrymal suture), 55.8; length of horn (anterior curve), 803; circumference of horn at base, 350; greatest spread of horns (between tips), 410; maxillary toothrow (alveoli), 88.2. Greatest spread of horns of old male from vicinity of type locality, 524.

Remarks.—*Ovis canadensis weemsi* requires no very close comparison with any of the subspecies of *O. canadensis* except its geographic neighbor, *cremnobates*. Specimens from the Sierra de San Borjas are similar, but not quite so extreme in dark coloration, and share some of the distinctive cranial features of *weemsi*, but the massive, widely spreading horns of the rams approach those of *cremnobates*. The latter detail, however, is mentioned with reservations as it appears to be of limited value as a character in the group as a whole. Among more reliable characters are the form and dimensions of the nasals and premaxillae. The new form is based on two females, skins and skulls, and two males, skulls only, from the vicinity of the type locality, and four males and three females, skins and skulls, from the Sierra de San Borjas, 20–50 miles northeast of Calmalli. It is a pleasure to dedicate the subspecies to the collector, Colonel F. C. Weems, whose keen interest in the welfare of big game in particular, and wild life in general, has been manifested during many years.